Amendments to the Specification

The paragraph starting at page 5, line 15 and ending at line 18 has been amended as follows.

[0015] FIG. 1A and FIG. 1B show an external perspective view and a cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 1[[,]] of the present invention;

The paragraphs starting at page 6, line 21 and ending at page 7, line 5 have been amended as follows.

[0028] FIG. 14 is an external perspective view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 2 of the present invention;

[0029] FIG. 15 is an external perspective view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 3 of the present invention;

[0030] FIG. 16 is a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 4 of the present invention;

[0031] FIG. 17 is an external perspective view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 5 of the present invention;

The paragraphs starting at page 7, line 13 and ending at line 21 have been amended as follows.

[0034] FIG. 20 is an external perspective view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 8 of the present invention;

[0035] FIG. 21 is a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 9 of the present invention; and

[0036] FIG. 22 is a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 10 of the present invention.

The paragraph starting at page 8, line 1 and ending at line 4 has been amended as follows.

[0038] FIG. 1A and FIG. 1B show an external perspective view and cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 1 of the present invention.

The paragraphs starting at page 9, line 6 and ending at line 19 have been amended as follows.

[0042] As shown in FIG. 2, quadripartite electrode films are formed on both sides of the piezoelectric element, which is polarized. That is, in the upper piezoelectric element shown in FIG. 2, two neighboring electrode areas are polarized positive (+) (downward polarization) and the other two neighboring electrode areas are polarized negative (-) (upward polarization).

[0043] The lower piezoelectric element shown in FIG. 2 is also polarized in the same way as ~~for~~ the above-described piezoelectric element. The above-described two piezoelectric elements are overlapped with each other with one rotated 180 degrees from the other as shown in FIG. 2. Here, the electrode areas of vertically overlapping piezoelectric elements have mutually opposite polarizations.

The paragraph starting at page 10, line 5 and ending at line 11 has been amended as follows.

[0045] ~~FIG.~~ FIGs. 4(A) to 4(C) show vibration modes of a standing wave (standing wave with phase A) when an alternating signal is supplied to only the electrode films A(+) and A(-). The same figure shows a cross-sectional view when the piezoelectric element

shown in FIG. 2 is cut along a straight line a-a and arrows in the figure indicate polarization directions.

The paragraph starting at page 12, line 5 and ending at line 16 has been amended as follows.

[0051] In the above-described structure, the electrodes formed on the upper end surface of the upper piezoelectric elements in FIG. 6 and the ~~electrode~~ electrodes formed on the lower end surface of the lower piezoelectric elements are supplied with alternating signals having a time phase shift of 90 degrees from each other. As in the case of the piezoelectric elements shown in FIG. 2, these piezoelectric elements can also generate two standing waves (standing wave with phase A and standing wave with phase B) of secondary bending vibration having a spatial phase shift (in the wavelength direction) of 90 degrees and a time phase shift of 90 degrees from each other.

The paragraph starting at page 18, line 23 and ending at page 19, line 3 has been amended as follows.

[0071] In the vibrator in the state shown in FIG. 8, one end of the columnar portion 3 is connected by the connection portion 4, and therefore ~~when~~ displacements at the ends of the columnar portions 3a and 3b in the X-axis direction are transmitted to the end of the

columnar portion 3c. Therefore, the end of the columnar portion 3c displaces in the positive X-axis direction much more than the end of the columnar portion 3c in FIG. 7.

The paragraphs starting at page 23, line 23 and ending at page 24, line 26 have been amended as follows.

[0084] On the other hand, of the four columnar portions A shown in FIG. 11, two sets of columnar portions A which ~~facing~~ face each other sandwiching the center of the vibrator have displaced in directions opposite to each other in the circumferential direction of the vibrator. Here, when the vibrator is driven, standing wave vibration shown in FIG. 11 and standing wave vibration having a phase shift of 45 degrees from the above vibration are generated, and therefore the two sets of the columnar portions A have different vibration displacements in the Z-axis direction. Thus, only one set of columnar portions A which displace in one direction contacts the rotor. This adds the displacement in the rotation direction (one direction) to the rotor and can increase the rotation speed of the rotor.

[0085] Then, the effect of the connection portion 4 when the vibration mode of the vibrator in the circumferential direction is assumed to be tertiary will be explained using FIG. 12. The vibration displacement B in the figure corresponds to the vibration displacement indicated by arrow B in FIG. 8. The columnar portion where vibration displacement B occurs (hereinafter referred to as "columnar portion B") has displaced a

great deal in the diameter direction of the vibrator which is not directly related to the driving of the rotor and of the six ~~the~~ columnar portions B in the figure, directions of vibration displacement of the neighboring columnar portions B in the circumferential direction are opposite to one another in the diameter direction of the vibrator (inward in the diameter direction and outward in the diameter direction). Then, of the plurality of columnar portions 3, the columnar portions B have displaced most in the diameter direction.

The paragraph starting at page 27, line 19 and ending at line 23 has been amended as follows.

[0095] The vibrator of the vibration type driving apparatus which is another embodiment of the present invention will be explained below. ~~In the~~ The embodiment explained below will focus on a configuration different from that of the vibrator (FIG. 1) explained in Embodiment 1.

The paragraph starting at page 34, line 24 and ending at line 27 has been amended as follows.

[0117] FIG. 19A and FIG. 19B show an external perspective view and a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 7 of the present invention.

The paragraph starting at page 36, line 20 and ending at line 22 has been amended as follows.

[0123] FIG. 20 shows an external perspective view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 8 of the present invention.

The paragraph starting at page 37, line 3 and ending at line 15 has been amended as follows.

[0125] A base plate (base portion) 701 is formed in a disk shape and constructed ~~by~~ of an elastic body made of metal, etc., and a piezoelectric element bonded to the back of the elastic body. In this embodiment, no through hole is provided in the center of the base plate 701 and through ~~hole~~ holes 701a each having a predetermined diameter are formed side by side concentrically. As in the case of Embodiment 7, this embodiment can reduce

rigidity of the base plate 701 and thereby increase the amplitude of the displacement expanding member 2 and thereby improve the driving efficiency of the rotor. Moreover, this embodiment can reduce the natural frequency of the vibrator and thereby prevent unnecessary vibration of the vibrator from occurring.

The paragraph starting at page 38, line 3 and ending at line 5 has been amended as follows.

[0127] FIG. 21 shows a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 9 of the present invention.

The paragraph starting at page 39, line 20 and ending at line 22 has been amended as follows.

[0133] FIG. 22 shows a partial cross-sectional view of a vibrator of a vibration type driving apparatus ~~which is~~ according to Embodiment 10 of the present invention.

The paragraph starting at page 40, line 12 and ending at line 18 has been amended as follows.

[0136] According to the vibrator of this embodiment, two neighboring columnar portions 903 in the circumferential direction of the vibrator are connected by the connection portion 904 at their one end. Therefore, it is possible to increase displacement of the columnar portion 903 as in the case of Embodiment ~~1,and~~ 1, and thereby increase the rotation speed of the rotor.